



OSHDPD Special Seismic Certification Preapproval (OSP)

- For OSP of a product line with **similar structural configuration**, OSHDPD requires:
 - Testing of at least two units (typically the smallest & largest units) and
 - Verification of similarities for interpolated units (see the CBC 2010 Section 1708A.4).



OSP Requirements (Continued)

- If the units are to be qualified for different support, mounting, or attachment conditions
 - With and without vibration isolators (Internal and External Isolators are NOT equivalent) or
 - Different mounting types, such as (e.g. wall mounted vs. floor mounted, etc.)
- **Test of two units** shall be required for **each anchorage or mounting configuration**



OSP Requirements (Continued)

- If the **units are made of different materials** (e. g. Carbon Steel vs. Stainless Steel, etc.)
 - **Test of two units** shall be required for **each active and energized components**
 - **At least one test** is required for non-active components such as sheet metal housing



OSP Requirements (Continued)

- If **components are made by different manufacturer's**
 - **Test of two units** shall be required for **each manufacturer**
 - **Special Seismic Certification** pre-approval is valid for equivalent design, construction, and quality control to the tested units.



OSP Requirements (Continued)

- Multiple units can be tested on a single shake table simultaneously (provided table is capable of achieving the RRS with total payload).



Test Facility Requirements

- All tests shall be performed by an independent laboratory having accreditation to the International Standards Organization (ISO) accreditation standard 17025,

or

- Shall be under the responsible charge of a California Licensed structural, civil or mechanical engineer.



Test Report Requirements

- Test reports shall be prepared by a California Licensed structural, civil or mechanical engineer.
- If test reports are prepared by a California Licensed civil or mechanical engineer, they shall be reviewed and accepted by a California licensed structural engineer.



OSP Requirements (Continued)

- OSHPD strongly recommend that the Owner and his **California licensed structural engineer** agree on a test plan with OSHPD prior to any testing to ensure that there will be no issues with the OSP approval down the road.



Statutory OSHPD Review Requirements

§129680. Hospitals housing patients less able to protect themselves; Legislative Intent

- (a) It is the intent of the Legislature that hospital buildings that house patients who have less than the capacity of normally healthy persons to protect themselves, and that must be reasonably capable of providing services to the public after a disaster, shall be designed and constructed to resist, insofar as practical, the forces generated by earthquakes, gravity, and winds. In order to accomplish this purpose, **the office shall** propose proper building standards for earthquake resistance based upon current knowledge, and **provide an independent review of the design** and construction of hospital buildings.



The California Building Code, 2010

1601A.3 Enforcement Agency Approval. *In addition to requirements of California Code of Regulations (C.C.R.) Title 24, Parts 1 & 2, any aspect of project design, construction, quality assurance, or quality control programs for which this code requires approval by the design professional, are also subject to approval by the enforcement agency.*



Are Third Party Review Subject to OSHPD Review?

- **Yes**
- Required by Statute
- Required by the CBC 2010 Section 1601A.3



Can the Analysis be Bookended Similar to Testing?

•No

- Analysis is only good for the unit analyzed (limited variations and/or grouping may be acceptable)
- Since analysis of the smallest and largest buildings (under OSHPD jurisdiction) can't be used for permitting all OSHPD buildings (of a given structural configuration).
- However, testing of a few connections to verify a analysis methodology can justify all connections of similar configurations



What R_p can be used for Special Seismic Certification?

- $R_p = 1.0$ & $I_p = 1.5$ shall be used for analysis part of Special Seismic Certification, since functionality can't be verified by analysis.
- $R_p/I_p = 1.0$ for Special Seismic Certification by testing. **Both post test structural integrity and functionality shall be maintained.**
- ASCE 7-05 do not provide R_p values for special seismic certification. R_p values in ASCE 7-05 can be used for design of anchorage.



Can the Active Mechanical and Electrical Equipment get an OSP by analysis alone?

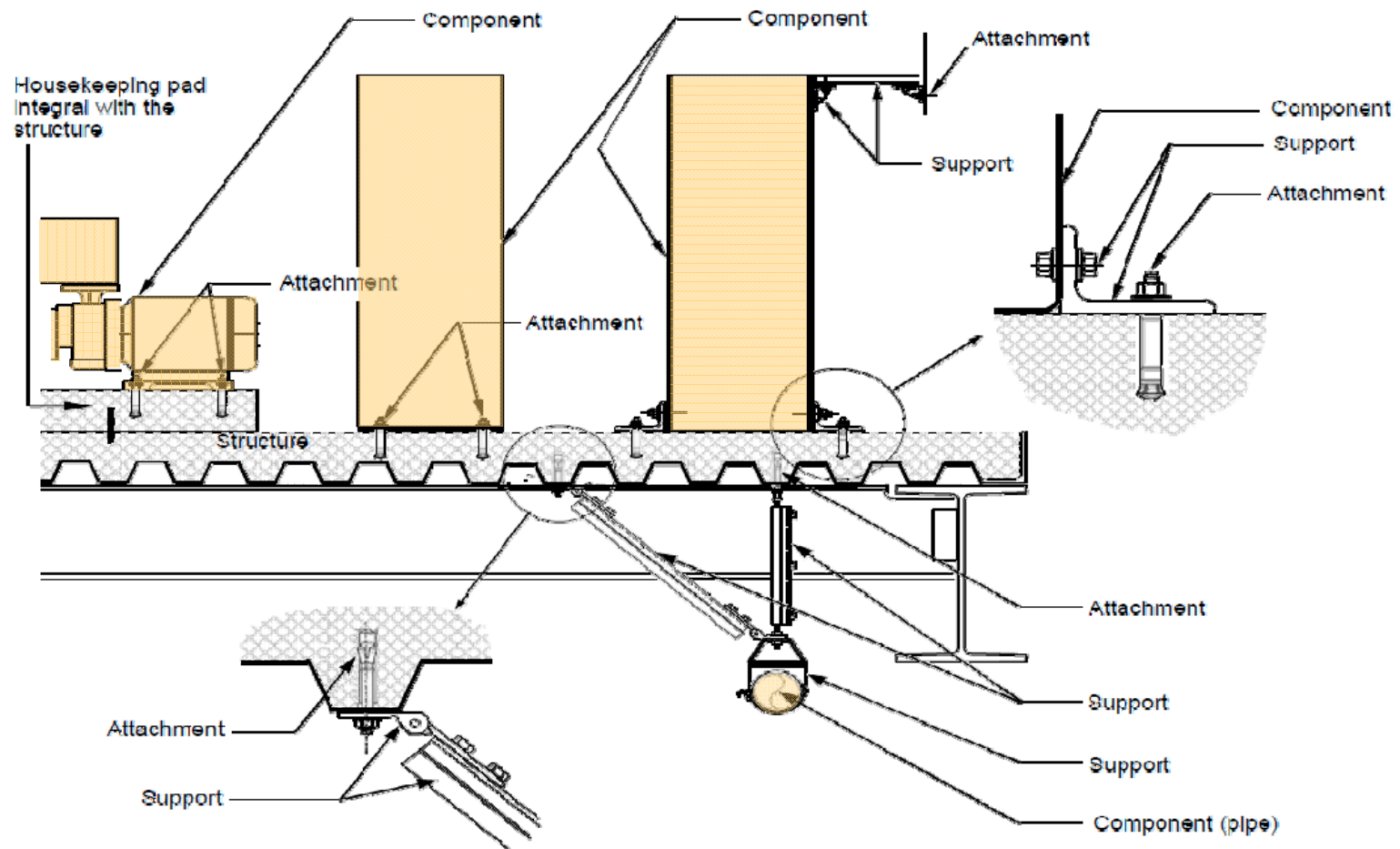
- No

- Active and energized components must be certified by shake table testing or experience data.

- ONLY connecting elements, attachments, and supports can be justified by supporting analysis for active and energized components



What are Components, Supports, and Attachments?





Does the Component Design need to Comply with the CBC 2010?

•Yes

- All components shall be designed in accordance with the CBC 2010 (both demand and capacity shall be based on the CBC 2010 and referenced material standards).
- Stability and local effects shall be part of the design as required by the CBC 2010.
- The CBC 2010 does not permit $1/3^{\text{rd}}$ allowable stress increase in seismic capacity determination for most materials, including steel and concrete.



OSP Submittal Requirements

- Completed application in word format with signature attached in Section 3.0 of the application form.
- Application review fee of \$5,000.00 payable to “OSHPD”.
 - Renewal fee is \$1,000.00
- Complete test reports in electronic form that satisfy minimum content requirements by OSHPD.
- Verification of similarities for interpolated units in the form of manufacturer's catalog and/or schematic cut sheets.



What Equipment/Components are Eligible for OSP?

- OSHPD Special Seismic Certification Preapproval (OSP) is limited to:
 - Components that require special seismic certification in accordance with the CBC 2010 Section 1708A.4.1.

OR

- Components that require special seismic certification in accordance ASCE 7-05 Section 13.2.2.



OSHPD Contact for Additional Information about OSP

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What Systems/Components Require Special Seismic Certification for OSHPD 1 Buildings?

- **List of Systems Requiring Special Seismic Certification for OSHPD 1 Buildings under the CBC 2010:**
 1. *Emergency and standby power systems including generators, turbines, fuel tanks, and automatic transfer switches.*
 2. *Elevator equipment (excluding elevator cabs).*



What Systems/Components Require Special Seismic Certification for OSHPD 1 Buildings?

- **List of Equipment and Components Requiring Certification for OSHPD 1 Buildings under the CBC 2010**
 3. *Components with hazardous contents.*
 4. *Smoke control fans.*
 5. *Exhaust fans*
 6. *Switchgear.*
 7. *Motor control centers.*
 8. *X-Ray machines in fluoroscopy rooms.*
 9. *CT (Computerized Tomography) Scanners*



What Systems/Components Require Special Seismic Certification for OSHPD 1 Buildings?

- **List of Equipment and Components Requiring Certification for OSHPD 1 Buildings under the CBC 2010**
 10. *Air conditioning units.*
 11. *Air handling units.*
 12. *Chillers.*
 13. *Cooling Towers.*
 14. *Transformers.*
 15. *Electrical substations.*
 16. *UPS and batteries.*
 17. *Distribution panels including electrical panel boards,*
 18. *Control panels including fire alarm, fire suppression, preaction, and auxiliary or remote power supplies.*



What Components are Exempt from Special Seismic Certification for OSHPD 1 Buildings?

1. Equipment and components **installed in nonconforming buildings** unless the equipment or component provides a service/system or utility to conforming buildings, or building is designated as SPC 3 or higher.
2. Equipment and **components weighing not more than 20lbs. supported directly on structures** (and not mounted on other equipment or components) with supports and attachments in accordance with ASCE 7 Chapter 13 as modified by Section 1615A.



What Systems/Components Require Special Seismic Certification for OSHPD 2 & 3 Buildings?

- *Special Seismic Certification is required for **components that are part of the Designated Seismic System** in accordance with the CBC 2010 Section 1708A.4 (subject to provisions of ASCE 7-05 Section 13.2.2).*
- *All components with importance factor equal to 1.5 are part of the Designated Seismic System.*
- *Component importance factor shall be in accordance with ASCE 7-05 Section 13.1.3.*



How much change can be made before OSP becomes invalid?

OSP will be nullified when:

- *Design, construction, or quality control/quality assurance method are **materially altered** as defined in the California Administrative Code, 2010 Section 7-111.*

OR

- *Strength and Stiffness are altered so that they are no longer equivalent to what is approved in the OSP.*